

Patent claims

1. A device for applying a ventrally or dorsally directed translatory force onto a lower leg (3) in the area of a knee joint for treatment or follow-up treatment of knee instability, in particular cruciate ligament instability, with a thigh bar (6) which can be secured on a thigh (1), with a lower-leg bar device which acts on the lower leg (3), is coupled in an articulated manner to the thigh bar (6) and is operatively connected to a fixation device (12) that can be secured on the lower leg (3), and with a spring device which generates a defined pretensioning force and acts on the lower-leg bar device, characterized by the following features:
  - the lower-leg bar device has a shorter bar arm (9) and a longer bar arm (10), both bar arms (9, 10) being able to swivel relative to the thigh bar (6),
  - the two bar arms (9, 10) are arranged so as to be able to swivel relative to one another,
  - the shorter bar arm (9) is coupled at its distal end to the fixation device (12) in an area close to the knee, whereas the longer bar arm (10) is coupled with its distal end to the fixation device (12) in an area farther away from the knee,
  - the pretensioning force of the spring device acts between the shorter and longer bar arms (9, 10) in such a way that the bar arms (9, 10) are urged to execute a swiveling movement relative to each other, such that a ventrally or dorsally directed translatory force is applied to the fixation device (12) in the area close to the knee.

2. The device as claimed in claim 1, characterized in that the two bar arms (9, 10) of the lower-leg bar device are able to swivel about the same swivel axis (11) situated at the distal end of the thigh bar (6).  
5
3. The device as claimed in claim 1 or 2, characterized in that the bar arms (9, 10) are coupled at their distal ends by means of bolts (15, 17) which extend laterally outward from the fixation device (12).  
10
4. The device as claimed in one of the preceding claims, characterized in that at least one of the bar arms (9, 10) has, at its distal end, an oblong hole (16) into which a bolt (15) of the fixation device (12) protrudes, in order to couple the bar arm (9) to the fixation device (12) in a longitudinally displaceable manner.  
15
5. The device as claimed in one of the preceding claims, characterized in that the fixation device (12) which can be secured on the lower leg (2) is made up of a half-shell (13), and the two bar arms (9, 10) are coupled to the half-shell (13) at the two opposite end areas of the half-shell (13).  
20
6. The device as claimed in one of the preceding claims, characterized in that the spring device comprises a flat coil spring (29) arranged in a spring housing (19) which is secured on one of the bar arms (9) and, together with the latter, can be swiveled relative to the thigh bar (6), the center axis of the spring housing (19) coinciding with the swivel axis (11).  
30
7. The device as claimed in claim 6, characterized in that the pretensioning force of the spring device  
35

can be adjusted by means of a toothed wheel gear located in the spring housing (19).

8. The device as claimed in one of the preceding claims, characterized in that the lower-leg bar device is mounted in an oblong hole (46) of the thigh bar (6) so as to be displaceable on the thigh bar (6).
- 10 9. The device as claimed in claim 8, characterized in that the oblong hole (46) extends in the longitudinal direction of the thigh bar (6).